

CLAIMS :

1. A capillary array electrophoresis apparatus in which laser beam is irradiated to either one or both
5 end capillaries at both sides of a capillary array constituted by a plurality of capillaries arranged on a plane and the laser beam propagates successively to the adjacent capillary and passes across the plurality of capillaries characterized, in that between a laser
10 oscillator and a laser beam condensing means for condensing the laser beam onto the capillaries an overlapping of reflected laser beam by a capillary face is prevented.
- 15 2. A capillary array electrophoresis apparatus in which laser beam is irradiated to both end capillaries at both sides of a capillary array constituted by a plurality of capillaries arranged on a plane and the two laser beams propagate successively to the adjacent
20 capillaries and pass across the plurality of capillaries characterized, in that at least one of the irradiated laser beams is arranged not in parallel with respect to a plane formed by the capillaries.
- 25 3. A capillary array electrophoresis apparatus in which laser beam is irradiated to both end capillaries at both sides of a capillary array constituted by a

plurality of capillaries arranged on a plane and the two laser beams respectively propagate successively to the adjacent capillaries and pass across the plurality of capillaries characterized, in that the orthogonal
5 projections of the two incident laser beams with respect to the plane face formed by the capillary array are not in parallel.

4. A capillary array electrophoresis apparatus
10 according to claim 3 characterized, in that the centers of the two opposing laser beams overlap near the center of the capillary array each other.

5. A capillary array electrophoresis apparatus
15 according to claim 4 characterized, in that the capillary array electrophoresis apparatus further comprises a fluorescent detection means using a grating, wherein when a specific liquid having refractive index of 1.41 is injected into all of the
20 capillaries and an image is formed after a certain specific Raman band from the liquid effecting the respective opposing two incident laser beams as an excitation light source is spectrumed by the grating, the position of the formed image of the Raman band
25 from the capillary at the laser beam incident side is shifted toward a short wavelength in comparison with the position of the formed image of the Raman band

from the capillary at the laser beam outlet side.

6. A capillary array electrophoresis apparatus according to claim 5 characterized, in that when
5 removing two condenser lenses which condense the opposing two incident laser beams onto the capillaries, the opposing two laser beams are substantially in parallel and are perpendicular with respect to axes of capillaries.

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7. A capillary array electrophoresis apparatus according to claim 5 characterized, in that the capillary array electrophoresis apparatus further comprises a position adjusting mechanism of a laser
15 beam condenser lens.

8. A capillary array electrophoresis apparatus according to claim 5 characterized, in that the capillary array electrophoresis apparatus further
20 comprises a laser beam optical axis adjusting jig which is constituted by a set of two plates in each of which two holes having substantially the same diameter as that of the laser beam are formed at positions where the two parallel laser beams pass through.

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9. A capillary array electrophoresis apparatus according to claim 5 characterized, in that the

fluorescent detection means includes a wave length dispersion means such as a grating and a prism, and the wave length dispersion direction effected by the wave length dispersion means is set substantially perpendicular to a laser beam optical axis passing the capillaries.

10. A capillary array electrophoresis apparatus according to claim 5 characterized, in that the fluorescent detection means includes a CCD (Charge Coupled Device) camera and pixel grid of the CCD camera is substantially in parallel with the laser beam optical axis passing the capillaries.

11. A capillary array electrophoresis apparatus according to claim 5 characterized, in that the capillary array electrophoresis apparatus further comprises a light interrupting plate which is disposed primarily to interrupt at least one of light transmitted through the capillaries and reflection light from the capillaries.